materials such as high-strength plastic, metal, carbon fiber and the like, as well as combinations of the same.

The advantages of the present invention include, without limitation, that the present imaging systems in certain embodiments are portable and exceedingly easy to transport. Embodiments of present imaging system are easy to move into a hospital, office or elevator because the device is relatively small and lightweight. Moving such a device typically requires only a single person, even when taking the system up or down a ramp. Further, certain embodiments of the system can pass through most standard doorways without requiring any widening of the doorways. Further, the system can easily be moved from spot to spot once inside a room.

In one aspect, the present invention is an imaging system in which an imaging gantry ring can tilt, rotate or translate along a mobile base with a detachable or movable patient tabletop support, thus allowing the apparatus to be easily transportable. The rotation and tilt axes of the gantry ring permits the gantry ring to be oriented generally perpendicular to the mobile base, allowing a cantilevered tabletop support to pass through the center of the gantry ring in certain imaging modes, and further allows the gantry ring to be rotated generally in-line with the mobile base in a transport mode, thus allowing the apparatus to be as narrow as possible to pass through hallways, corridors or elevators.

Those of ordinary skill will understand and appreciate the existence of variations, combinations, and equivalents of the specific embodiments, methods, and examples disclosed herein. The invention should therefore not be limited except by the scope and spirit of the appended claims.

What is claimed is:

1. A mobile medical imaging system, comprising:

a base having a top surface;

a gantry ring comprising an outer shell containing an image collection apparatus and defining an inner bore, the gantry ring coupled to the base and positioned above the top surface of the base, the gantry ring rotatable relative to the base at least about 90 degrees with respect to an axis extending generally normal to the top surface of the base, the gantry ring having an inner bore diameter that is greater than about 38 inches and an outer diameter of the outer shell of the gantry ring is less than about 70 inches;

a motorized system that translates the gantry ring along a length of the base in an imaging mode; and

a transport motor geared into at least one wheel that drives the system in a transport mode.

2. The mobile medical imaging system of claim **1**, wherein the at least one wheel is coupled to the base.

3. The mobile medical imaging system of claim **1**, further comprising:

a gimbal support connected to the base, the gantry ring being attached to the gimbal support and suspended above the top surface of the base, wherein the gantry ring translates by the translation of the gimbal support on the base.

4. The mobile medical imaging system of claim **3**, wherein the gimbal support comprises a generally U-shaped support having arms extending upwards from the base and connecting to opposite sides of the gantry ring.

5. The mobile medical imaging system of claim **4**, wherein the gantry ring is pivotable with respect to the gimbal support to tilt the gantry ring relative to the gimbal support and the base.

6. The mobile medical imaging system of claim **1**, wherein the image collection apparatus comprises an x-ray source and an x-ray detector array.

7. The mobile medical imaging system of claim **6**, wherein the x-ray source and the x-ray detector rotate 360 degrees around the interior of the gantry ring to obtain imaging data of an object positioned within the bore.

8. The mobile medical imaging system of claim **7**, wherein the x-ray source and x-ray detector are mounted to a rotor, the rotor rotating around the interior of the gantry ring.

9. A mobile medical imaging system, comprising:

a base having a top surface;

a pedestal mounted to the base;

a gantry ring comprising an outer shell containing an image collection apparatus and defining an inner bore, the gantry ring coupled to the base and positioned above the top surface of the base, the gantry ring rotatable relative to the base at least about 90 degrees with respect to an axis extending generally normal to the top surface of the base, the gantry ring having an inner bore diameter that is greater than about 38 inches and an outer diameter of the outer shell of the gantry ring is less than about 70 inches;

a tabletop support mounted to and disposed above the pedestal, the tabletop support extending at least partially into the bore of the gantry ring;

a motorized system that translates the gantry ring along a length of the base in an imaging mode; and

a transport motor geared into at least one wheel that drives the system in a transport mode.

10. The mobile medical imaging system of claim **9**, wherein the tabletop support is detachable from the pedestal.

11. The mobile medical imaging system of claim **9**, wherein the tabletop support comprises a surgical or trauma table.

12. The mobile medical imaging system of claim **9**, wherein the tabletop support comprises a chair for imaging of a seated patient.

13. The mobile medical imaging system of claim **9**, wherein the tabletop support comprises a plurality of modular sections that can be added to and removed from the tabletop support to modify the configuration of the tabletop support.

14. A mobile medical imaging system, comprising:

a base having a top surface;

a pedestal mounted to the base, wherein the pedestal is adapted to support any one of a plurality of interchangeable tabletop supports;

a gantry ring comprising an outer shell containing an image collection apparatus and defining an inner bore, the gantry ring coupled to the base and positioned above the top surface of the base, the gantry ring rotatable relative to the base at least about 90 degrees with respect to an axis extending generally normal to the top surface of the base, the gantry ring having an inner bore diameter that is greater than about 38 inches and an outer diameter of the outer shell of the gantry ring is less than about 70 inches;

a motorized system that translates the gantry ring along a length of the base in an imaging mode; and

a transport motor geared into at least one wheel that drives the system in a transport mode.

15. The mobile medical imaging system of claim **1**, wherein the base has a length and a width, and the gantry translates over substantially the entire length of the base.

16. The mobile medical imaging system of claim **15**, further comprising a pedestal mounted to the base at or near a first end of the base, and the gantry ring translates over substantially the entire length of the base from the pedestal to the second end of the base.